

**PROCESS FOR FABRICATING A SEMICONDUCTOR  
DIFFRACTION GRATING USING A SACRIFICIAL LAYER**

**ABSTRACT OF THE DISCLOSURE**

An optical device including a first semiconductor layer on which is deposited a dielectric layer that is patterned and etched to form dielectric strips that are part of a diffraction grating layer. A second semiconductor layer is grown on the first semiconductor layer between the dielectric strips to provide alternating dielectric sections and semiconductor sections. Via channels can be patterned and etched through the second semiconductor layer so that dielectric strips can be removed to form dielectric air channels.